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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

JONES, DANELLE E

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/531,015	Applicant(s) GERRITS ET AL.	
	Examiner Danelle E. Jones	Art Unit 2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 April 2005.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-18 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>1/12/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-10, 14-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oomen et al. US 2002/0007268 in view of Rise US 6,337,997.

Regarding **claims 1 and 14**, Oomen et al. discloses a method of encoding an audio signal, the method comprising the steps of:

analyzing the sampled signal values to generate one or more sinusoidal components for each of the plurality of sequential segments (see para [0002]);

generating sinusoidal codes comprising tracks of linked sinusoidal components (see para [0002]);

determining phase update information indicative of the phase value of selected sinusoidal components in a track (see para [0005] – [0007])

and generating an encoded audio stream including said sinusoidal codes and said phase update information (see para [0003]).

Oomen et al. does not explicitly disclose providing a respective set of sampled signal values for each of a plurality of sequential segments. However this feature is well known in the art as indicated by Rise. Rise discloses a signal that is broken down into a sequence of segments to eliminate small amplitude noise (see col. 6, lines 24-31). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Rise's method of reducing sinusoidal signals for the benefit of eliminating small amplitude noise.

Regarding **claim 2**, Oomen et al. discloses a method according to claim 1 wherein said phase update information comprises the phase value of selected sinusoidal components (see para [0005]).

Regarding **claim 3**, Oomen et al. discloses a method according to claim 1 wherein said phase update information comprises a difference between the phase value of selected sinusoidal components and a continuous phase value for said selected sinusoidal components extrapolated from previous phase information through the linked sinusoidal components of a track (see para [0005]).

Regarding **claim 4**, Oomen et al. discloses a method according to claim 1 in which said phase update information is provided for every nth segment in a track (see para [0005]).

Regarding **claim 5**, Oomen et al. discloses the claimed invention except for a method according to claim 4 wherein $n=4$. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to have $n=4$, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding **claim 6**, Oomen et al. discloses the claimed invention except for a method according to claim 4 wherein n varies according to the frequency of said linked sinusoidal components. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to have n varies according to the frequency of said linked sinusoidal components, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding **claim 7**, Oomen et al. discloses a method according to claim 1 wherein said phase update information is quantized according to one of a uniform or a non-uniform scale (see para [0005]).

Regarding **claim 8**, Oomen et al. discloses a method according to claim 1 in which each track comprises a frequency, amplitude and phase for a sinusoidal component in a starting segment of a track and a frequency and amplitude difference

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for each sinusoidal component in a subsequent continuation segment of said track (see para [0001] and [0005]).

Regarding **claim 9**, Oomen et al. discloses a method according to claim 1 further comprising:

synthesizing said sinusoidal components using said sinusoidal codes and said phase update information (see para [0002]);

subtracting said synthesized signal values from said sampled signal values to provide a set of values representing a remainder component of said audio signal (see para [0007]);

modeling the remainder component of the audio signal by determining parameters, approximating the remainder component (see para [0017]);

and including said parameters in said audio stream (see para [0017]).

Regarding **claim 10**, Oomen et al. discloses a method according to claim 1 wherein said sampled signal values represent an audio signal from which transient components have been removed (see para [0002]).

Regarding **claim 15**, Oomen et al. discloses an audio player comprising:

means for reading an encoded audio stream including sinusoidal codes comprising tracks of linked sinusoidal components and phase update information

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indicative of the phase value of selected sinusoidal components in a track (see para [0005] and [0017]);

and a synthesizer arranged to employ said sinusoidal codes to synthesize said audio signal including re-constructing sinusoidal components across a plurality of sequential segments as a function of continuous phase information extrapolated from previous phase information through the linked sinusoidal components of a track and said phase update information (see para [0002] and [0007]).

Regarding **claim 16**, Oomen et al. discloses an audio system comprising an audio coder as claimed in claim 14 and an audio player as claimed in claim 15 (see para [0020]).

Regarding **claim 17**, Oomen et al. discloses an audio stream comprising sinusoidal codes representative of at least a component of an audio signal, said codes comprising tracks of linked sinusoidal components and phase update information indicative of the phase value of selected sinusoidal components in a track (see para [0005] and [0017]);

Regarding **claim 18**, Oomen et al. discloses a storage medium on which an audio stream as claimed in claim 17 has been stored (see para [0020]).\

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claim 11 is rejected under 35 U.S.C. 102(e) as being anticipated by Oomen et al US 2002/0007268.

Regarding **claim 11**, Oomen et al. discloses a method of decoding an audio stream, the method comprising the steps of:

reading an encoded audio stream including sinusoidal codes comprising tracks of linked sinusoidal components and phase update information indicative of the phase value of selected sinusoidal components in a track (see para [0005] and [0017]); and employing said sinusoidal codes to synthesize said audio signal including reconstructing sinusoidal components across a plurality of sequential segments as a function of continuous phase information extrapolated from previous phase information

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through the linked sinusoidal components of a track and said phase update information (see para [0007]).

5. Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oomen et al.

Regarding **claim 12**, Oomen et al. discloses a method according to claim 11. Oomen et al. does not disclose the phase of said sinusoidal components in a segment k is re-constructed according to the equation: $\text{PHI.} \sim k = \text{PHI.} \sim k - 1 + L^2 \cdot \text{times.} (f_k + f_{k-1}) + \text{DELTA.} k'$ where L is the update interval of the frequencies and where $\text{DELTA.} \text{sub.} k$ is interpolated from said phase update information between selected sinusoidal components. However this is well known in the art. Thus, it would have been obvious to one of ordinary skill in the art to use the equation claimed because it is a well known phase continuation equation (KSR International Co. v. Teleflex Inc., 550 U.S. -, 82 USPQ2d 1385 (2007)).

Regarding **claim 13**, Oomen et al. discloses a method according to claim 12. Oomen et al. does not disclose where $\text{DELTA.} k' = \text{DELTA.} K n$ or $\text{DELTA.} k' = (K - k + n) \cdot \text{DELTA.} K (n + 1) n / 2$, where n is the number of segments between selected segments, where $K - n < k \leq K$, where K is the number of the selected segment in a track for which phase update information is provided, and where $\text{DELTA.} \text{sub.} k$ comprises a difference between the measured phase value of the selected sinusoidal

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component and a continuous phase value for the selected sinusoidal component extrapolated from previous phase information through the linked sinusoidal components of a track. However this is well known in the art. Thus, it would have been obvious to one of ordinary skill in the art to use the equation claimed because it is a well known difference equation (KSR International Co. v. Teleflex Inc., 550 U.S. -, 82 USPQ2d 1385 (2007)).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Danelle E. Jones whose telephone number is 571-270-1241. The examiner can normally be reached on M-F 7:30am - 5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on 571-272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DJ
10/4/07



RICHEMOND DORVIL
SUPERVISORY PATENT EXAMINER